

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended) A storage controller for controlling transfer of input/output data to and from a lower level apparatus in response to input/output requests received from a higher level apparatus, said storage controller comprising:

a plurality of external interface controllers for receiving said input/output requests;

a plurality of control processors which process said input/output requests;

a loop of fibre channel interface interposed between said external interface controllers and said control processors to serve as a channel through which information is transferred therebetween; and

~~storing means~~ a shared memory which is accessed in common by said control processors and which stores logical unit numbers of the input/output requests to be processed by said control processors,

wherein each of said control processors ~~comprises: counting means for counting~~ counts the number of processed input/output requests, ~~notifying means for notifying~~ notifies the other control processors of the counted number of processed input/output requests, ~~acquiring means for acquiring~~ acquires the number of processed input/output requests from the other control processors, and ~~updating means for updating~~ updates said logical unit numbers in said storing means so as to

average the counts of processed input/output requests between said control processors.

2. (currently amended) A storage controller according to claim 1, wherein said ~~storage means~~shared memory stores physical addresses of said loop of fibre channel corresponding to each of said control processors in addition to said logical unit numbers corresponding to the same control processor.

3. (original) A storage controller according to claim 1, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of different types, and

wherein each of said external interface controllers converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

4. (original) A storage controller according to claim 3, wherein said external interface includes a fibre channel interface, and

wherein said external interface controller transmits an input/output request received from said higher level apparatus to said loop of fibre channel interface.

5. (original) A storage controller according to claim 3, wherein said

external interface includes a SCSI, and

wherein said external interface controller converts said input/output request in SCSI format into a request in an information format used for said loop of fibre channel interface.

6. (original) A storage controller according to claim 3, wherein said external interface includes a channel interface controller which converts said input/output request in channel interface format into a request in an information format used for said loop of fibre channel interface.

7. (original) A storage controller according to claim 2, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of types; and

wherein said external interface controller converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

8. (original) A storage controller according to claim 7, wherein said external interface includes a fibre channel interface; and

wherein said external interface controller transmits the input/output request received from said higher level apparatus to said loop of fibre channel interface.

9. (original) A storage controller according to claim 7, wherein said external interface includes a SCSI; and
wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

10. (original) A storage controller according to claim 7, wherein said external interface includes a channel interface for the use of main frame system; and
wherein said external interface controller converts said input/output request in the channel interface format into the request in an information format used for said loop of fibre channel interface.

11. (currently amended) A storage controller according to claim 1, wherein said storing means further has a time information area for allowing said plurality of control processors to write current time information;

wherein each of said plurality of control processors ~~further has means for writing~~ writes the current time information at predetermined intervals; and wherein as part of said monitoring means allows each control processor to check said current time information written by other control processors to detect whether any of said control processors has stopped or not.

12. (original) A storage controller according to claim 11, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of types; and wherein said external interface controller converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

13. (original) A storage controller according to claim 12, wherein said external interface includes a fibre channel interface; and wherein said external interface controller transmits the input/output request received from said higher level apparatus to said loop of fibre channel interface.

14. (original) A storage controller according to claim 12, wherein said external interface includes a SCSI; and wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

1415. (currently amended) A storage controller according to claim 12, wherein said external interface includes a SCSI; and

wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

1516. (currently amended) A storage controller according to claim 12, wherein said external interface includes a channel interface for the use of main frame system; and

wherein said external interface controller converts said input/output request in the channel interface format into the request in an information format used for said loop of fibre channel interface.

1617. (currently amended) A storage controller according to claim 1, wherein said ~~storing means~~shared memory stores physical addresses on said loop of fibre channel interface corresponding to each of said control processors in addition to said logical unit numbers corresponding to the same control processor for the input/output request to be processed; and

wherein said updating means in said control processor updates both logical unit numbers and said physical addresses in accordance with the number of input/output requests processed by other control processors.

1718. (currently amended) A storage controller according to claim 16, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of types; and

wherein said external interface controller converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

1819. (currently amended)A storage controller according to claim 17, wherein said external interface includes a fibre channel interface; and

wherein said external interface controller transmits the input/output request received from said higher level apparatus to said loop of fibre channel interface.

1920. (currently amended)A storage controller according to claim 17, wherein said external interfaced includes a SCSI; and

wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

2021. (currently amended)A storage controller according to claim 17, wherein said external interface includes a channel interface for the use of main frame system; and

wherein said external interface controller converts said input/output request in the channel interface format into the request in an information format used for said loop of fibre channel interface.